

## WHAT IS CLAIMED IS:

1. A method of forming an inside wall of a support bearing of given height H and designed to receive a cylindrical element, said method comprising the steps of:

5       - estimating a deflection  $f$  taken by the cylindrical element between the center and one end of the support bearing, given:

          - a predetermined loading of the cylindrical element;

10       - predetermined stiffness characteristics for the cylindrical element; and

          - a predetermined assumption concerning thrust between the cylindrical element and the support bearing;

          - estimating a nominal radius R by the relationship  
15        $R=H^2/8f$ ;

          - determining an inside wall for the support bearing extending over a toroidal surface having a throat diameter equal to the diameter of the cylindrical element, ignoring predetermined clearance, and having a  
20       meridian radius lying in a range of  $\pm 15\%$  about the nominal radius R; and

          - machining the support bearing in such a manner that its inside wall occupies the toroidal surface as determined in this way.

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2. A method according to claim 1, wherein the predetermined loading of the cylindrical element corresponds to a severe loading that is likely to occur on average less than once per thousand loadings of the  
30       cylindrical element.

3. A method of forming a support bearing according to claim 1, adapted to a support bearing for mounting with clamping in a support, the method including the step of  
35       mounting the support bearing and clamping it in its support, prior to machining the inside wall of the

support bearing to take up the determined toroidal surface.

4. A method according to claim 3, wherein, when the  
5 support bearing is mounted in its support, its inside wall is cylindrical.